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JUNE 5, 1871.

Mr. VAUX, Vice-President, in the chair.

Nineteen members present.

The publication of pp. 57 to 88 of the proceedings for 1871 was announced.

Remarks on a Fossil Testudo from Wyoming.—Prof. LEIDY directed attention to some remains of a fossil turtle discovered by Dr. Joseph K. Corson, U.S.A., of Fort Bridger, at Grizzly Buttes, Wyoming, in association with remains of *Palæosyops*, &c. Most of the remains of turtles from the same locality, which had been submitted to his inspection, appeared to belong to the same family as our terrapins, except those referred to the genus *Trionyx.* The present fossils appear to indicate a large species of land tortoise, equal in size to the living *Testudo indica* of the Galipagos Islands. Less characteristic fragments, apparently of the same turtle, had been previously found by others, especially Prof. Hayden and Dr. J. Van A. Carter. The most characteristic specimen obtained by Dr. Corson is the anterior extremity of a sternum, consisting of the greater part of both episternals and a small portion of the entosternal bone. It might be supposed to belong to an *Emys*, but its abrupt and prolonged extension forward as in several of the living species of land tortoises, coupled with its great thickness and strength, leads to the opinion that it really indicates a large *Testudo.*

The gular scute impressions are defined by strong oblique grooves diverging at angles of about 40°. From the outer boundary of these impressions, the episternals are directed rather abruptly forward for an inch and three-quarters. In front, the sternum forms a nearly straight line three and three-quarter inches wide, and is only slightly notched at the middle.

The under surface of the episternals corresponding with the position of the gular scutes, is strongly convex; the upper surface slopes forward to the anterior acute border.

The gular scutes, at their posterior angle, touched upon the entosternal bone. Their length in the median line is three and a half inches; at their outer border, three and a quarter inches. The episternals measure three and a quarter inches in advance of the entosternal plate; their thickness reaches an inch and a half.

The species was named TESTUDO CORSONI, in honor of its discoverer.

Remarks on supposed Fossil Turtle Eggs.—Prof. LEIDY then exhibited a number of specimens of what he suspected were fossil turtle eggs. They were found by Dr. J. Van A. Carter, of Fort Bridger, Wyoming, in the same formation which has yielded so many remains of turtles. Dr. Carter had discovered upwards of forty of them together, and first suggested the idea that they might be eggs. Prof. Hayden's collection from the same vicinity contained several specimens of the same bodies, which had been incidentally glanced at as coprolites. The uniformity in shape and size of these bodies, coupled with the structure, which consists of a thin homogeneous stony shell filled with an arenaceous matrix, renders it probable they may be eggs. They have the elongated oval form of the eggs of our common *Emys picta*, and measure about an inch in length and five lines in the short diameter.

Remarks on the Garnets of Green's Creek, Delaware Co.—Prof. LEIDY also directed attention to the character of the garnets of Green's Creek, Delaware County. These garnets, usually much prized by our mineralogists, appear not to have been discovered in place, and have been found as part of the pebbles of the creek bottom. They never present a crystalline form, and are looked upon as rolled pebbles. Specimens exhibited show a singular grooved appearance, apparently due to the abstraction of crystals of some other mineral, which had been imbedded in the surface of the garnets. This condition would indicate that the garnets probably existed in the rock in the form of nodules and not of crystals, as is frequently the case with minerals imbedded in trap rocks. In Dana's Mineralogy it is stated that chlorastrolite occurs on the shores of Isle Royale, L. S., in small rounded pebbles which have come from the trap and are water-worn. To avoid an erroneous impression, it should rather state they are found in the trap as rounded nodules, and become detached by the breaking up of the trap on the shores of the lake.

Mr. THOMAS MEEHAN referred to some remarks made by him to the Academy recently in regard to variations in the cotyledons of the peach, in which the most striking fact was that there was a multiplication of cotyledons when there was a plurality of embryos, without any increase in the usual cotyledonous mass; and that in the division of this mass no proportionate rule was adopted in the apportionment of each. He said he could not then understand how this arrangement accorded with the general opinion that the lobes of the dicotyledonous seed were formed almost simultaneously with the origin of the fertilized vesicles, but dared not express his doubts on that one instance alone. But he had now to offer for the examination of the members numerous specimens of sprouting cotyledons of *Quercus robur* and *Quercus rubra*, which seemed to admit of no other conclusion than that the division into cotyledons was accomplished long after the cotyledonous mass had been shaped as we find it finally developed in the seed.

In the case of *Quercus robur* a plurality of plantlets from one sprouting seed was not uncommon. He had found dozens in a peck of seed. These were usually in twos, but occasionally in threes. Of the last he exhibited only one specimen. In all these cases there was no more matter employed than if only one dicotyledonous seed had been perfected in the usual way. The division of the mass into four or six cotyledons was very arbitrary. In some cases one cotyledon would have one-third the whole to itself, the remaining being divided between the rest. There was also the same irregularity in direction. In some cases the division, after going longitudinally perhaps one-third the distance, would take a lateral direction, giving a broken-off appearance to the one cotyledon, similar to the leaf of a *Liriodendron*, while the opposite division would thus be left with a thick gibbous tip. The divisions in other cases would take a somewhat spiral course. It was evident that there was little more rule in these divisions than there would be in the breaking of a piece of glass.

He had examined a half peck of sprouting acorns of *Quercus palustris* and another of *Quercus macrocarpa*, but in these he could detect no sign of variation—each seed seemed cleft smoothly and directly through the centre into two regularly equal halves. But in *Quercus rubra* there were some remarkable phenomena. Of these he exhibited numerous specimens. In none of them did he find a plurality of embryos, the interest was in the division of the pair of cotyledons. All the specimens of *Quercus rubra* examined had fissures extending from the outside towards the centre. These were two, three, or four. In some cases the fissures extended but a mere line in depth; at other times they would penetrate to near the centre of the mass. In all these instances the surfaces in the fissures were clothed with membrane, just as we find to be the case in the walnut. The divisions of the cotyledons *were always in the direction of these fissures*, giving the lobes a very irregular appearance. In some cases a triangular section served for one lobe, while the sum of two united triangular sections served for the second one. It was so evident here that the divisions of the seed into cotyledons were in the weakest lines of union, and that these weak lines existed *prior to the division*, that he thought no one of the gentlemen present who were examining them could possibly dispute the conclusion.

He further suggested that the absence of any secondary membrane from the face of the cotyledon was an argument in favor of a late and smaller division. In ruminated seeds, such as the walnut or papaw, this membrane followed the innermost outline of the surface, and was no doubt a formation directly from the cells of the cotyledonous mass; but the suddenness of cotyledon formation would prevent the formation of such a membrane, especially after the cells had lost much of their vitality by being converted into depositions of starchy or other matter. Hence we found but the finest membrane covering the cotyledon faces.

He could not understand how the facts exhibited accorded with the early division into cotyledons by actual growth, as taught in our leading botanical works. For himself, he felt that botanists would yet come to regard *all seeds as non-cotyledonous in their early stages; and that the divisions into cotyledonous lobes was a mechanical result* determined in a great measure by the position of the germinal vesicle without the cotyledonous mass.

Mr. Meehan also referred to remarks he made on a former occasion in regard to the sensitive clasping of the stigmatic divisions of the pistil in *Torenia asiatica.* He had since found the same phenomenon in *Mimulus*, *Lindernia*, and *Diplacus;* allies of the *Torenia.* He did not know that this irritable closing power had been placed on record anywhere; but as there were hybrids of *Mimulus* in cultivation, the fact could not but have been noticed by cultivators at some time. In *Mimulus* the motion was more rapid than in others he had tried.

JUNE 13.

The President, Dr. **RUSCHENBERGER**, in the chair.

Twenty-seven members present.

The following papers were offered for publication:—

"Notice of a new Brachiopod from the Lead-bearing rocks at Mine La Motte, Mo." By F. B. Meek.

"Descriptions of three new species of Exotic Unionidæ." By Isaac Lea.

"Descriptions of twenty new species of Unionidæ of the United States." By Isaac Lea.

Prof. **COPE** made some extended observations on the supposed orders of *Plectognathi* and *Lophobranchii* of Cuvier, of which the following is an abstract: He stated that, after an examination of their structure, he could not regard them as divisions of equal value with the *Physostomi* and *Physoclysti*, etc. He stated that the *Plectognathi* are *Physoclysti* in all respects, viz., the relations of the supra-occipital to the other cranial bones, the structure of the scapular arch, hyoid and branchial arches, in the relations of the dorsal and ventral fins, structure of basis of caudal fin, of swim-bladder, etc. The family *Teuthyes*, among other *Physoclysti*, formed the nearest approach to them, and that the coalescence of